DOCUMENT RESUME

ED 051 968 RE 003 625

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TITLE The Effect of Two Instructional Methods on Transfer from a Transitional Writing System in Traditional Orthography.
PUB DATE 71
NOTE 7p.

EDRS PRICE EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS Alphabets, Graphemes, Initial Teaching Alphabet, Learning Characteristics, *Methods Research, *Orthographic Symbols, Performance Tests, Reading Research, *Teaching Methods, Transfer of Training, *Undergraduate Study, *Word Recognition

ABSTRACT

This study investigated (1) whether symbol-symbol correspondences are learned better when imbedded in whole words or when presented individually and (2) the effect of these two instructional methods on transfer from an experimental transitional writing system (TWS) to traditional orthography (TO). Thirty-five undergraduates were randomly assigned to two treatment groups (18 to individual symbol method of presentation and 17 to the embedded symbol whole word method). For the first group, 17 TWS graphemes were paired with corresponding TO graphemes in the Roman alphabet for learning; for the second group, the symbols were arranged to spell nine words. In a transfer test the subjects were required to transliterate seven novel words into their TO equivalents. The number of trials to reach criterion (one errorless trial) for both methods was analyzed by means of ANOVA, and the Mann-Whitney U Test was used to analyze the data from the transfer task. Results showed that instruction by the whole word method resulted in faster learning, but this mastery was not as conducive to transfer as learning the symbols individually. When learning and transliteration were considered together, the individual letter method of instruction was significantly faster than the whole word method. It was concluded that though slower in initial learning, the individual letter method was superior and faster for transfer performance and overall time. Tables and references are included. (AW)

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THE EFFECT OF TWO INSTRUCTIONAL METHODS ON TRANSFER FROM A TRANSITIONAL WRITING SYSTEM TO TRADITIONAL ORTHOGRAPHY

by
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Problem

Transitional writing systems (TWS) such as the Initial Teaching Alphabet (i.t.a.) have long been used to introduce students to both reading and writing. As their names usually imply, they are intended only for temporary use, i.e. until some reading and writing proficiency has been acquired, and then students are transferred to traditional English orthography (TO). Although it is known that the transfer from a TWS to TO causes difficulty, little is known about the role played in transfer by the various specific components of a TWS -- its symbols, orthography, instructional methodology employed, etc.

This study sought to collect evidence bearing on one issue involved in the use of a TWS. Specifically, whether symbol-symbol correspondences are learned better when embedded in whole words or when presented individually, and the effect of these two instructional methods on transfer from TWS to TO. Although users of i.t.a. have stressed that teachers may use any strategy with that TWS writing system (Downing, 1968), some research has been reported showing a general superiority for an individual letter method (Bishop, 1964; Jeffrey and Samuels, 1967) when using transitional writing systems.

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Method

Thirty-five Ss (30 males and 5 females) from an undergraduate psychology course were randomly assigned to two treatment groups: 18 Ss to the individual symbol method of presentation and 17 Ss to the embedded symbol (whole word) method.

Instruction took the form of a paired-associates task employing a memory drum. For the individual symbol method, 17 TWS graphemes, patterned somewhat after the McKee alphabet (McKee, 1966) were paired with each of their corresponding TO graphemes in the Roman alphabet for learning. For the whole word method the 17 TWS symbols were arranged so as to spell 9 words, each of which was paired with its corresponding TO word form. In the whole word group, Ss were instructed to pay attention to the individual TWS symbols that comprised their words at the beginning of each learning trial. Ss in the two conditions were equated for mastery, the criterion being one errorless trial.

The transfer test, consisting of seven novel words, was constructed by rearranging 12 of the 17 original TWS symbols. Ss were required to transliterate the words into their TO equivalents. This task was completed when all words had been correctly written in TO. During the transfer task, prompting was employed if S did not complete the test within two minutes. The first prompt consisted of E telling S that the words followed the pattern of a normal English sentence. If S had not completed the test by the end of a second two minute period,

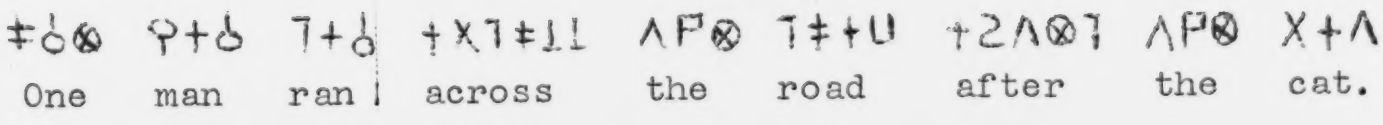
and subsequent one minute periods after that, E provided additional learning trials on the memory drum. The transfer test was not present during these trials. The relearning trials were added to the number of original instructional trials in computing the number of trials necessary for learning. The TWS-TO learning material and the transfer test have been included in Table 1.

TABLE 1

TWS SYMBOLS AND TEST SENTENCE, AND TO EQUIVALENTS

Individual Letter Group Symbols		Whole Word Group Symbols	
	A		N
	B		O
	C		P
	D		R
	E		S
	F		T
	H		U
	I		W
	M		
			A
			BAD
			CAR
			FOUR
			HIT
			IT
			MEN
			STOP
			WHEN

Test Sentence



One man ran across the road after the cat.

The number of trials to reach criterion for both methods was analyzed by means of ANOVA. The data from the transfer task, the number of seconds required for successful completion of transliteration (excluding the time for relearning trials), was analyzed by means of the Mann-Whitney U Test. Finally, the overall time required for learning (36 seconds per trial for the whole word method and 34 seconds per trial for the individual symbol method) plus transliteration were analyzed by the Mann-Whitney U Test.

Results

The whole word method learned the TWS-TO (Roman) grapheme correspondences in significantly fewer trials than did the individual letter trained group. (9.78 mean trials for the whole word method versus 12.14 mean trials for the individual letter group; $F = 4.44$, df 1/34, $p < .05$)

However, the whole word group was significantly slower at transliteration than was the individual letter group. (290 median seconds for the whole word group versus 120.5 median seconds for the individual letter group; $U = Z = 3.10$, $p < .001$). In addition, seven Ss in the whole word treatment needed additional training trials after the test sentence had been presented, while no S from the individual letter treatment required additional trials.

Thus, while instruction by the whole word method resulted in faster learning, this mastery was not as conducive to transfer as learning the symbols individually. Furthermore,

the additional time required in instruction by the individual letter group was more than made up by the end of the experiment since overall experiment times were 701 median seconds for the whole word group and 527 median seconds for the individual letter group ($U = Z = 2.11$, $p < .02$)

Discussion

The possible reason for the differences between the two methods in learning and transfer may lie in the nature of the TWS learning task. In the whole word group, the new symbols were embedded in words. While the Ss were instructed to pay attention to the individual TWS symbols on each trial, they apparently learned them in combinations that were essentially whole words.

However, when the transfer task was presented, the Ss found it difficult to lift the embedded TWS symbols from within the learned combinations and re-combine them to transliterate the novel words in the test sentence. Hence, the phenomena of more time for transfer and the need for additional learning trials during the transfer test in the whole word method.

Conversely, the individual letter trained group was learning single TWS-TO symbol correspondences during initial presentations. In other words, the TWS symbols were being learned separately along with their TO equivalents. While this was slower for initial learning, it resulted in much faster transfer because Ss were able to combine the symbols

and transliterate the new words more easily.

The interesting feature of this study was the light it shed on total learning and transliteration time. When both tasks were considered together, the individual letter method of instruction was significantly faster than the whole word method of instruction. Thus, while initial learning was slower when learning by individual letters, it was definitely superior and faster for transfer performance and overall time. Apparently, once the individual TWS symbols are learned they can be easily reorganized into new combinations resulting in faster and more efficient transfer.

Educational Implications

The results of this study suggest that, contrary to some TWS adherents, the teaching method one uses with a TWS may be quite important, especially at the time of transfer. Another way of saying this is that in reading as in other ventures, occasionally the long way 'round is the shortest way home.

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